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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/707,435	11/06/2000	Debra D. Wawro	UTSL:058US/MTG	9722

7590 03/12/2003

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EXAMINER
KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/707,435	Applicant(s) WAWRO ET AL.	
	Examiner Chih-Cheng Glen Kao	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-70 is/are pending in the application.

4a) Of the above claim(s) 36,37,52-60 and 67-70 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-35,38-51 and 61-66 is/are rejected.

7)☒ Claim(s) 31,61,62,65 and 66 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 06 November 2000 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,6 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election of species I in Paper No. 8 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 36, 37, 52-60, and 67-70 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

Specification

3. The abstract of the disclosure is objected to because the abstract may not exceed 150 words in length. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities. "FIGS. 26a and 26b" are recited on Page 14, line 24. This objection may be obviated by replacing the above recitation with "FIGS. 26A and 26B" to correspond with the objections to the Figs. 26a and 26b as recited below in Paragraph 4 of the Office action. Appropriate correction is required.

Drawings

5. With regards to Figs. 26a and 26b, the drawings are objected to because partial views intended to form one complete view, on one or several sheets, must be identified by the same number followed by a capital letter. View numbers must be preceded by the abbreviation "FIG. ". This objection by labeling the two figures corresponding to "FIGS. 26a and 26b" as "FIG. 26A" and "FIG 26B". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: Fig. 22, "B". A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "fourth organic layer in contact with the at least the layer" as recited in claim 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

8. Claim 31 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 30. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. This objection may be obviated by deleting claim 31. Appropriate correction is required.

9. Claims 61, 62, 65, and 66 are objected to because of the following informalities. Claims 61, 62, 65, and 66 recite the limitation "one of the permittivities of the at least one permittivity" in line 2 of each claim. There is insufficient antecedent basis for this limitation in the claim. This objection may be obviated by deleting "one of the permittivities of". For purposes of examination, the claims have been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1-12, 14, 38-40, 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farah (US Patent 5891747) in view of Magnusson et al. (US Patent 5598300).

Farah discloses a waveguide grating device, system, and a method of forming the device comprising a fiber (Fig. 4A, #6) or a rectangular waveguide (Fig. 14, #86) with a cleaved (col. 5, lines 15-17) endface (Fig. 4A, #1', and col. 8, lines 40) made of a dielectric polymer (col. 13, lines 5-7) having a grating that is etched (col. 14, lines 62-65) with the same permittivity as the waveguide (Fig. 4A, #31, and col. 8, lines 44).

However, Farah does not disclose the grating having a waveguide and dielectric-polymer grating as one layer, as different layers in contact, a third dielectric layer in contact with the grating layer comprising metal, a fourth layer, with permittivities of the grating and waveguide layer, periodic structure of the grating, thickness of the waveguide layer, and thickness of the grating layer.

Magnusson et al. teaches a grating (Fig. 5) having a waveguide (Fig. 2, "ε_{1L}"), and dielectric-polymer (col. 2, lines 24-26, and col. 12, lines 48-50) grating layer (Fig. 2, "ε_{1H}") as one layer (Fig. 2), as different layers in contact (Fig. 5), a third dielectric layer in contact with the grating layer (Fig. 6, "ε_2") comprising metal (col. 12, lines 48-50), a fourth layer (Fig. 1), with different permittivities of the grating (Fig. 6, "ε_{3H}") and waveguide layer (Fig. 6, "ε_1"), periodic structure of the grating (Fig. 6, layer with "ε_{3H}"), thickness of the waveguide layer (Fig. 6, "d_1"), and thickness of the grating layer (Fig. 6, "d_3").

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the same layer grating of Magnusson et al. with the device and method of Farah, since the grating of Farah and Magnusson et al. are considered equivalent structures known in the art, and one of ordinary skill in the art would have found it obvious to substitute one grating for another. One would be motivated to have the grating of Magnusson et

al., since one would be motivated to use the significantly improved filter characteristics for ideal or near-ideal filter as shown by Magnusson et al. (col. 7, lines 23-25).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the different layer grating of Magnusson et al. with the device and method of Farah, since the grating of Farah and Magnusson et al. are considered equivalent structures known in the art, and one of ordinary skill in the art would have found it obvious to substitute one grating for another. One would be motivated to have the grating of Magnusson et al., since one would be motivated to use the significantly improved filter characteristics when using multiple layers as shown by Magnusson et al. (col. 9, lines 54-56).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the third and fourth layer of Magnusson et al. with the device and method of Farah in view of Magnusson et al., since one would be motivated to use the significantly improved filter characteristics when using multiple layers as shown by Magnusson et al. (col. 9, lines 54-56).

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farah in view of Magnusson et al. as applied to claim 12 above, and further in view of Carter et al. (US Patent 4531809).

Farah in view of Magnusson et al. suggests a device as recited above.

However, Farah does not disclose an organic layer.

Carter et al. teaches an organic layer (Claim 1 and 8).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the organic layer of Carter, with the suggested device of Farah in view of Magnusson et al., since it would have been within the general skill of a worker in the art to select a know material on the basis of its suitability for the intended use. Secondly, it would have only involved routine skill in the art to substitute one type of material for another. Lastly, one would be motivated to use organic material for its faster transmission properties as implied from Carter et al. (col. 1, lines 48-53).

12. Claims 15-19, 22-32, 34, 35, and 61-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farah in view of Magnusson et al. and Baets et al. (US Patent 6191890).

For purposes of being concise, Farah in view of Magnusson et al. suggests a device as recited above. Farah further discloses a source, such as a laser (col. 17, lines 45-50), which is a continuous wave source, at a proximal end (Fig. 1, #10) for signal propagation to a grating (Fig. 4a) with a photodetector (Fig. 1, #12, and col. 6, line 30).

However, Farah does not disclose grating fill factor as a variable parameter nor a grating period less then the wavelength of the signal.

Baets et al. teaches grating fill factor as a variable parameter (col. 8, lines 55). Magnusson et al. further teaches a grating period less then the wavelength of the signal (col. 4, lines 60-67).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the grating fill factor as a variable parameter of Baets et al. with the

suggested device of Farah in view of Magnusson et al., since one would be motivated to use this parameter to optimize the grating (col. 8, lines 45-60) as implied from Baets et al.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the grating period less than the wavelength of the signal of Magnusson et al. with the suggested device of Farah in view of Magnusson et al., since one would be motivated to use this parameter to only allow zero-order signals to propagate and not see other higher-order diffracted waves as implied from Magnusson et al. (col. 4, lines 60-67).

13. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farah in view of Magnusson et al. and Baets et al. as applied to claim 19 above, and further in view of Layton (US Patent 4753529).

Farah in view of Magnusson et al. and Baets et al. suggests a system as recited above.

However, Farah does not disclose a detector comprising silicon.

Layton teaches a detector comprising silicon (col. 14, lines 10-15).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have a photodetector comprising silicon of Layton with the suggested device of Farah in view of Magnusson et al. and Baets et al., since one would be motivated to use this for low-noise purposes (col. 14, lines 4-15) as implied from Layton, so that none of the actual signal gets lost in the noise.

14. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farah in view of Magnusson et al. and Baets et al. as applied to claim 19 above, and further in view of Epworth (US Patent 4533247).

Farah in view of Magnusson et al. and Baets et al. suggests a system as recited above.

However, Farah does not disclose a detector comprising a human eye.

Epworth teaches a detector comprising a human eye (col. 3, lines 60-63).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have a photodetector comprising a human eye of Epworth with the suggested device of Farah in view of Magnusson et al. and Baets et al., since one would be motivated to keep manufacturing costs down by not needing a machined optical detector if all that is necessary for use is the human eye as implied from Epworth (col. 3, lines 60-65).

15. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farah in view of Magnusson et al. and Baets et al. as applied to claim 32 above, and further in view of Kunz (US Patent 5442169).

Farah in view of Magnusson et al. and Baets et al. suggests a system as recited above.

However, Farah does not disclose a detector comprising an electrochemical sensor.

Kunz teaches a detector comprising an electrochemical sensor (col. 4, lines 60-69).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have a photodetector comprising an electrochemical sensor with the suggested device of Farah in view of Magnusson et al. and Baets et al., since one would be

motivated based on engineering efficiency to use this based on the purpose of the system such as chemical or medical as implied from Kunz (col. 4, lines 60-69).

16. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farah in view of Magnusson et al. as applied to claim 40 above, and further in view of Grabbe (US Patent 5863449).

Farah in view of Magnusson et al. suggests a method as recited above.

However, Farah does not disclose dipping.

Grabbe teaches dipping (col. 3, lines 30-40).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have dipping of Grabbe with the suggested method of Farah in view of Magnusson et al., since one would be motivated to dip to put additional layers on the endface as implied from Grabbe (col. 3, lines 30-40).

17. Claims 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farah in view of Magnusson et al. and Grabbe as applied to claim 41 above, and further in view of Hobbs (WO 97/47997).

Farah in view of Magnusson et al. and Grabbe suggests a method as recited above.

However, Farah does not disclose holographic interferometry or photolithography patterning.

Hobbs further teaches holographic interferometry (Page 1, "Field of Invention") or photolithography patterning (Page 2, top paragraph).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the patterning techniques of Hobbs with the suggested method of Farah in view of Magnusson et al. and Grabbe, since one would be motivated to use these techniques to produce periodic structures as implied from Hobbs (Page 1, "Field of Invention").

18. Claims 45 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farah in view of Magnusson et al. as applied to claims 40 and 38 above, and further in view of Levenson et al. (US Patent 5291574).

Farah in view of Magnusson et al. suggests a method as recited above.

However, Farah does not disclose spin coating or sputtering.

Levenson et al. teaches spin coating or sputtering (col. 2, lines 33-36).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have spin coating of Levenson et al. with the suggested method of Farah in view of Magnusson et al., since one would be motivated to use spin coating or sputtering to add layers as implied from Levenson et al. (col. 2, lines 33-36).

19. Claims 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farah in view of Magnusson et al. as applied to claim 38 above, and further in view of Dimos et al. (US Patent 6096127).

Farah in view of Magnusson et al. suggests a method as recited above.

However, Farah does not disclose thermal evaporation, electron-beam evaporation, or liquid phase epitaxy.

Dimos et al. teaches thermal evaporation, electron-beam evaporation, or liquid phase epitaxy (col. 1, lines 30-40).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the various depositing methods of Dimos al. with the suggested method of Farah in view of Magnusson et al., since these methods are well known in the art and one would be motivated to use these methods to deposit layers (col. 1, lines 30-50) as implied from Dimos et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

gk
March 9, 2003

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